Assignment 11

Engineering Casualty Control

Textbook Assignment: Engineman 1&C, NAVEDTRA 10543-E1, Pages 9-1 through 9-13

Learning Objective: Point out the purpose of engineering casualty control and indicate sources of specific information.

11-1. What is the primary objective of engineering casualty control?

1. To minimize personnel casualties
2. To operate engineering equipment at maximum economy
3. To maintain the efficiency of the engineering equipment
4. To minimize secondary damage to the engineering equipment

11-2. In battle, which of the following casualties would most affect the primary objective of engineering casualty control?

1. Injury to five people in the engineering department
2. Rupture of the primary firemain
3. Loss of the engineer officer
4. Bent compressed air piping

11-3. An indirect effect of engineering casualties suffered by a ship is the loss of

1. mobility
2. offensive power
3. defensive power
4. personnel morale and efficiency

11-4. What is/are the secondary objective(s) of casualty control?

1. To minimize personnel casualties
2. To minimize secondary damage to nonvital equipment
3. Both 1 and 2 above
4. To isolate machinery spaces

11-5. In which of the following publications can detailed information on casualty control be found?

1. In the Damage Control Book and the Engineering Casualty Control Manual
2. In the Ship's Organization Book and the Ship's Repair Party Manual
3. Both 1 and 2 above
4. In the manufacturer's instruction book and the 3-M Manual

Learning Objective: Recognize some factors influencing the effectiveness of engineering casualty control.

11-6. Which of the following actions should contribute towards an effective engineering casualty control program?

1. Constant training of personnel
2. Thorough maintenance of plant
3. Cross-connection of duplicate vital
4. Each of the above

11-7. Your training program in casualty control must include adequate and proper means for disseminating information. Failure to incorporate casualty control communication into your training program will result in which of the following conditions?

1. Failure of your casualty control organization to fulfill its primary objective
2. Possibility of more serious casualties than the original one
3. Both 1 and 2 above
4. Need for the establishment of a control station

11-8. Preventive maintenance involves continuous inspections of equipment to detect possible symptoms of malfunctions which may be indicated by which of the following symptoms?

1. Unusual noises
2. Unusual vibrations
3. Abnormal temperatures, pressures, and speeds
4. Each of the above

11-9. After showing a normal reading for a long time, a pressure gage on a pressure-governor-controlled pump suddenly shows a sharp rise in pressure. What is the Possible cause of the rise?

1. Disorder of the gage
2. Disorder of the governor
3. Internal mechanical failure
4. Each of the above

11-10. Which of the following factors may explain why a defective pump may lose its pumping capacity before any external evidence of failure is noticeable?

1. The designed safety margin of the Pump
2. Improper setting of the pump governor
3. Disorder of the safety devices
4. Disorder of the pump gages

11-11. A material failure is discovered in one of the fuel pumps. Which of the following is the proper correct actions you should take?

1. Inspect all similar pumps for the same defect
2. Repair or replace the damaged pump
3. Clean out the entire fueling system
4. Replace all similar pumps

11-12. How often should an oil sample be taken from all auxiliary machinery and tested for water contamination?

1. Daily
2. Weekly
3. Monthly
4. Quarterly

11-13. Lubricating oil which contains saltwater will damage all types of bearings. To which of the following bearings types is contaminated oil particularly harmful?

1. Pivoted shoe-type thrust bearings
2. Piston pin bearings
3. Roller bearings
4. Ball bearings

11-14. Simulated casualty exercises are often rendered ineffective because of which of the following reasons?

1. Inadequate use of dry runs
2. Inadequate advance preparation
3. Lack of Personnel with battle experience
4. Limited number of simulated casualties

Learning Objective: Recognize the methods and importance of preventing progressive casualties.

11-15. Continuous operation of equipment under casualty conditions is a responsibility of which of the following ship's officers?

1. Operation officer
2. Commanding officer
3. Engineering officer
4. Officer of the watch

11-16. What is the most important factor in efficient casualty control procedures?

1. Speed in restoring damaged units
2. Accuracy of corrective action
3. Status of personnel training
4. Speed in cross-connecting an intact system with a partially damaged system

11-17. During which of the following circumstances may an intact propulsion plant be cross-connected with a damaged plant?

1. When the auxiliary units become impaired
2. When casualties have become cumulative
3. When this procedure will not endanger the intact plant
4. All of the above

11-18. During damage control operation, the arresting secondary damage effects to engineering plant units is known by which of the following terms?

1. Limited corrective action
2. Emergency restoration
3. Complete repair
4. Split-plant operation

11-19. Which, if any, of the following casualty control phases is concerned primarily with complete repairs of the casualty?

1. Phase 1
2. Phase 2
3. Phase 3
4. None

11-20. Prevention of secondary damage effects to engineering plants is an objective considered to be a/an

1. limited corrective action
2. emergency restoration
3. complete repair
4. split-plant operation

11-21. What is the primary reason for maintaining a split-plant condition on a ship?

1. To simplify damage control procedures
2. To simplify normal maintenance procedures
3. To minimize the possibility of overall casualty to the engineering plant
4. To minimize mechanical fatigue in each separate plant

● Question 11-22 is to be judged True or False.

11-22. A ship's engineering plant which is split into two or more independent systems will NOT provide insurance against damage to the engineering plant.

11-23. If the ship's fuel oil system is in split-plant operation, bow does the after fuel oil service pump operate?

1. It takes suction from the after service tanks and discharge to the forward main engines
2. It takes suction from the after service tanks and discharged to the after main engines
3. It takes suction from the forward service tanks and discharge to the after main engines
4. It takes suction from the forward service tanks and discharge to the main forward main engines

11-24. Each ship's diesel-electric generator plant can operate independently and carry its own connected load. This type of setup is known as

1. segregation
2. duplication
3. split-plant
4. flexibility and adaptability

11-25. Which of the following is a component of a diesel-electric drive installation and is designed for split-plant operation only?

1. Cooling system
2. Main diesel engines
3. Propulsion generators
4. Starting air compressor

11-26. Which of the following methods for locking the main shaft of a diesel-electric drive ship can NOT be used while the ship is underway?

1. The energizing of the electrical propulsion circuits
2. The setting up of a jury rig to hold the main shaft stationary
3. The using of brakes to hold the main shaft stationary
4. The using of a jacking gear specifically designed for that purpose

11-27. Formulating engineering casualty procedures pertinent to a specific type of propulsion plant is the responsibility of which of the following personnel?

1. Type commander
2. Squadron commander
3. Engineer officer
4. Commanding officer

11-28. What is the first consideration to keep in mind in the event of casualty to propulsion machinery?

1. Immediate suspension of the operation of the damaged plant
2. Prevention of further damage to the plant and its auxiliaries
3. Speedy restoration of the damaged plant
4. Immediate isolation of cross-connected plants

Learning Objective: Identify procedures to be followed for specified engineroom casualties.

11-29. An engineroom casualty reduces the ability of the engineroom crew to answer bells. Who is the first person who should be notified?

1. Officer of the deck
2. Main propulsion assistant
3. Engineer officer
4. Commanding officer

● Question 11-30 is to be judged True or False.

11-30. The Engineering Casualty Control Manual contains detailed information on diesel engine casualty control procedures.

11-31. Assume the ship is underway and one of the propulsion engines shows symptoms of a broken injector tip. What is the first step you should take to correct the casualty?

1. Notify the OOD
2. Secure the engine
3. Cut out the injector
4. Notify the engineer officer

11-32. What is the first action that should be taken immediately after the lube oil pressure to the main engine has failed?

1. Secure the engine
2. Start the standby oil pump
3. Notify the engineer officer
4. Notify the officer of the deck

11-33. Water is discovered in an engine cylinder, which of the following methods should you use to determine its source?

1. Start the engine and visually check for leaks
2. Put a pressure test on the freshwater system
3. Check the cylinders by jacking over the engine with test cocks closed
4. Both 2 and 3 above

11-34. Checking the amount of fuel in the service tank is a part of the casualty control procedure in which of the following situations?

1. The speed governor has failed
2. The coupling is throwing oil
3. The fuel oil pressure has failed
4. The diesel fuel oil transfer pump is inoperative

11-35. What step or steps should you take after you discover the trouble in a diesel engine that is operating with its lube oil temperature above normal?

1. Report it to the POOW
2. Check the lube oil level
3. Reduce the engine load and speed
4. Request permission to secure the engine in order to make repairs

11-36. Your diesel oil day tank contains excessive water. Which of the following corrective actions must be taken prior to draining the water from all filters and strainers?

1. Drain all diesel oil lines to all engines
2. Notify the bridge of the casualty
3. Shift fuel oil suction
4. Both 2 and 3 above

● Question 11-37 is to be judged True or False.

11-37. The purifier may be used to supply diesel oil in the fuel oil system when a casualty occurs to the transfer pump.

11-38. Should the main lube oil pump fail, which of the following actions should you take?

1. Cross-connect the twin hydraulic coupling systems
2. Start the lube oil transfer pump or the standby pump and cut in on the line
3. Repair the lube oil pump as soon possible
4. All of the above

11-39. Assume the air brake to the propeller shaft is inoperative and the engine must be used for maneuvering. Which of the following is NOT a step in the procedure for continuing engine operation?

1. Increase the reducing valve air pressure
2. Use the throttle to control engine speed
3. Notify the OOD and the engineer officer
4. Secure the air brake system

11-40. Manual operation of the clutch dump valve permits continued operation of the engine after failure of which of the following parts?

1. Speed governor
2. Propeller shaft pneumatic brake
3. Coupling lube oil regulating valve
4. Thermostat control valve

11-41. Assume you have removed the inspection plate to a faulty heat exchanger to observe for leakage. After plugging the expansion tank vent, you should check for leaks by pressurizing which of the following parts of the ship's cooler?

1. The saltwater side from the ship's air supply system
2. The freshwater side from the ship's air supply system
3. The saltwater side from the ship's freshwater system
4. The freshwater side from the ship's freshwater system

11-42. During an emergency, which of the following steps should you take to allow an engine to continue operating with a leaking heat exchanger?

1. Request permission to speed up the affected engine and manually increase the freshwater cooling pressure
2. Request permission to slow down the affected engine and manually reduce the saltwater cooling pressure
3. Keep a constant watch for any abnormal temperatures or pressures and inform the engineer officer of the operating conditions
4. Roth 2 and 3 above

In answering questions 11-43 through 11-45, select the action in column B that should be taken to correct the casualty in column A.

A. Casualties	B. Actions
11-43. Propeller shaft pneumatic brake fails to operate	1. Renew the Oil
11-44. Diesel engine main shaft bearings overheat due to grit or dirt	2. Regulate the valves manually
11-45. Hydraulic coupling is overheating	3. Check the electrical and pressure control switches to the air control valve
	4. Cross-connect the twin hydraulic coupling systems

11-46. What is the best emergency treatment if an overheated mainshaft bearing is found to be fitted improperly?

1. Renew the oil
2. Replace the oil rings
3. Provide an abundant supply of oil
4. Operate at low speeds until repairs can be made

11-47. Which of the following casualties should be investigated by means of a check on the oil discharge pressure?

1. Abnormal main shaft vibration
2. Abnormal noise in the reduction gear
3. Oil throwing by a coupling
4. Inoperative propeller shaft pneumatic brake

11-48. What is the first corrective action you should take if one of a ship's two propulsion shafts begins to vibrate excessively?

1. Slow both shafts
2. Slow the affected shaft
3. Investigate the fairwaters
4. Stop and secure the affected shaft

● Question 11-49 is to be judged True or False.

11-49. Personnel of the Engineman rating may be assigned duties on steam-driven ships to operate diesel-driven electric generating plants.

Learning Objective: Indicate sources of electrical power aboard ship, casualties that may occur, and methods of keeping vital equipment in operation.

11-50. What must you do if the ship's service generators fail during battle?

1. Ensure that the emergency system is rigged to supply power to vital auxiliaries
2. Ensure that the emergency system is automatically placed in operation
3. Ensure that the casualty power system is automatically placed in operation
4. Ensure that the casualty power system is rigged to supply power to vital auxiliaries

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In answering questions 11-51 through 11-53, select the action from column B that should be taken in the shipboard emergency described in column A to obtain power for vital equipment.

	A. Emergencies	B. Actions
11-51.	Failure of one ship's service generating plant	1. Shift vital equipment to an emergency feeder which receives power from the emergency switchboard
11-52.	Failure of both normal and alternate power supply	2. Rig temporary circuits with the casualty power cables from any live switchboard
11-53.	Failure of ship's service and emergency circuits	3. Transfer load to another ship's service generating plant
		4. Transfer the electrical load to an alternate feeder and source of ship's service power

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11-54. A ship's casualty power system provides sufficient power to

1. operate certain vital equipment only
2. permit the making of temporary repairs only
3. operate pumping equipment only
4. enable the ship to operate at near-normal efficiency

11-55. Which of the following components of the electrical system are placed above the waterline whenever practical?

1. Emergency generators
2. Ship's service and emergency generators
3. Emergency generators and switchboards
4. Ship's service and emergency switchboards

11-56. A ship's casualty power system is designed to provide enough emergency electric power for restoring the

1. services that are vital to the ship's survival
2. ship to near-normal operating efficiency
3. ship to normal operating efficiency
4. watertight boundaries and for making temporary repairs

11-57. You should be able to find your way quickly to sources of casualty power in the event of damage to the regular power system. Where can this source of power be located?

1. In a special housing switchboard
2. At the ship's central switchboard
3. At each emergency switchboard
4. At each ship's service switchboard and each emergency switchboard

11-58. What component is installed on power panels specifically for handling casualty power?

1. Bus bars
2. Transformers
3. Power terminals
4. Circuit breakers

11-59. The circuits that transmit a.c. casualty power to equipment designated to receive it consist chiefly of which of the following types of cable?

1. Portable 3-conductor
2. Vertical runs of insulated
3. Permanently installed armored
4. Horizontal runs of 2-conductor

11-60. On larger ships, the a.c. casualty power system generally consists of

1. one horizontal run, located inside the deck house
2. two horizontal runs, located on the second deck
3. two horizontal runs, located inside the deck house
4. one horizontal run, located on the second deck

11-61. Each riser terminal installed in a casualty power circuit provides a connection point for

1. two, 3-lead portable cables
2. two, 4-lead portable cables
3. three, 3-lead portable cables
4. three, 4-lead portable cables

11-62. The riser terminals of a casualty power system can be distinguished from the bulkhead terminals by which of the following characteristics?

1. The horizontal runs of the portable cable that connect the riser terminals to the other riser terminals
2. The horizontal runs of the portable cable that connect the bulkheads to the other bulkhead terminals
3. The vertical runs of the permanently installed armored cable that connect the riser terminals to the other riser terminals
4. The vertical runs of the permanently installed armored cable that connect the bulkhead terminals to the other bulkhead terminals

11-63. Phase identification of cable conductors is by color and by servings of cotton cord. Which of the following markings identifies a phase "B" cable?

1. White and two servings
2. Grey and three servings
3. Red and three servings
4. Black and one serving

11-64. You are connecting the leads in an a.c. casualty power system. Which of the following is always the safest procedure?

1. Connect the leads to a power panel while normal power is being supplied to it
2. Connect a black lead to a C terminal first
3. Connect the leads by working from the load to the power supply
4. Connect the two-serving lead to an A terminal first

11-65. All but which of the following are power sources for the electric-driven fire pumps aboard ship?

1. Ship's service generators
2. Diesel-driven emergency generators
3. Casualty power system
4. Transformers of the emergency lighting system

● Question 11-66 is to be judged True or False.

11-66. To supply an immediate source of lighting, in case of complete failure of the ship's service and emergency lighting systems, automatic bus transfers are installed at vital stations.

11-67. Maintenance of the hand battle lanterns in an engineering space and the making of them available for use at all times are responsibilities of which of the following personnel?

1. Electrician's Mate
2. PO in charge of the space
3. Electrician's Mate and PO in charge of the space, respectively
4. PO in charge of the space and Electrician's Mate, respectively

11-68. What is the maximum number of electrical power sources available to shipboard power panels?

1. One
2. Two
3. Three
4. Four

11-69. Where are the emergency portable, triple outlet extension cables stowed?

1. On bulkhead brackets
2. On overhead brackets
3. On bulkhead shelving
4. In damage control lockers